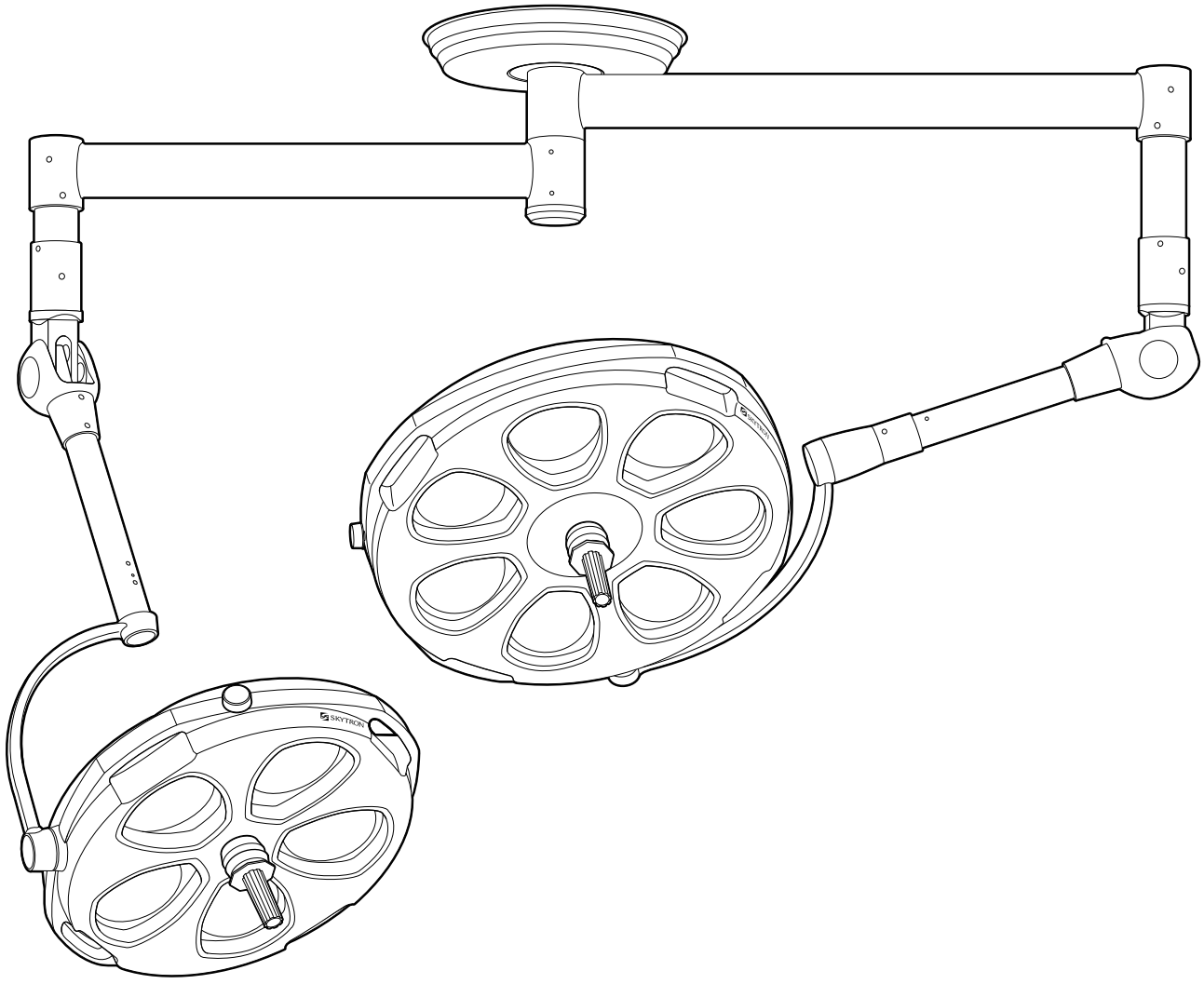
SKYTRON

INSTALLATION INSTRUCTIONS



STELLAR

SERIES SURGICAL LIGHTS

REV 6/05

EQUIPMENT LABELS AND SPECIFICATIONS

ATTENTION, CONSULT MANUAL FOR FURTHER INSTRUCTIONS.
INDICATES SPECIAL USER ATTENTION.

AC VOLTAGE

FUSE TYPE 3 AMP, SLOW BLOW TYPE

FUSE TYPE 5 AMP, SLOW BLOW TYPE

CLASS I DEFIBRILLATION PROOF, TYPE B EQUIPMENT- IPX4 RATED.
INTERNALLY POWERED EQUIPMENT

FOR DRY LOCATIONS
UNIT TO BE USED ONLY IN SPECIFIED ENVIRONMENTAL CONDITIONS
TEMPERATURE: 15˚ - 30˚ C (60˚ -85˚ F)
HUMIDITY: 30% - 60% RELATIVE HUMIDITY, NON CONDENSING

ENTELA CERTIFIED
TO UL2601-1
CAN/CSA601.1, IEC 60601-2-46

US C entela® Certified

TOOLS REQUIRED:

3/8" DRIVE RATCHET
ALLEN WRENCH SET-METRIC
(2) STEP LADDERS
3/4" DEEP SOCKET, 3/8" DRIVE
#2 PHILLIPS HEAD SCREW DRIVER
UTILITY KNIFE
WIRE CUTTERS
CRIMP PLIERS
DIGITAL LEVEL
TRUE RMS MULTIMETER
PORTABLE LIFT, 750LB. CAPACITY
12" ADJUSTABLE WRENCH
SLOTTED HEAD SCREWDRIVER 1/4"
PUNCHSET 1/8" - 3/8"

REV 6/05

Although current at the time of publication, SKYTRON'S policy of continuous development makes this manual subject to change without notice.

MODEL IDENTIFICATION

MODEL ST2923
1 - 29" Diameter Lighthead
1 - 23" Diameter Lighthead

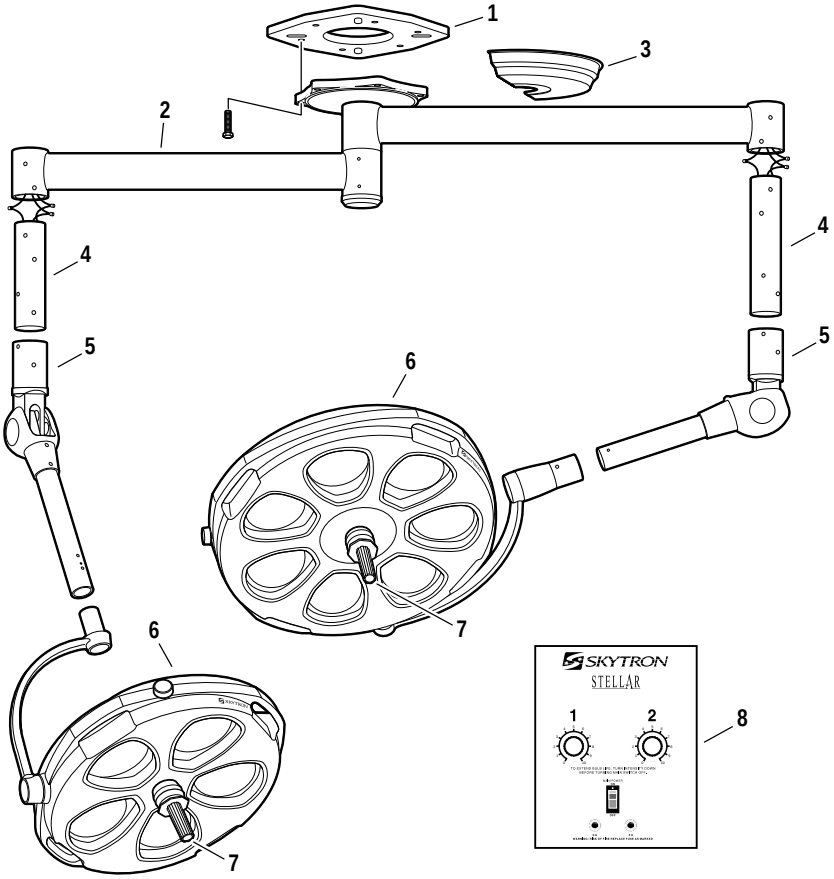
MODEL ST292323
1 - 29'' Diameter Lighthead
2 - 23" Diameter Lightheads

MODEL ST29
1 - 29" Diameter Lighthead

MODEL ST23
1 - 23" Diameter Lighthead

MODEL ST2323
2 - 23" Diameter Lightheads

MODEL ST232323
3 - 23" Diameter Lightheads



TYPICAL INSTALLATION SEQUENCE / COMPONENT IDENTIFICATION

1. Mounting Plate
2. Radial Arm Assembly(RAA)
3. Ceiling Cover
4. Vertical Support Tube(VST)
5. Balance Mechanism(BOM)
6. Lighthead
7. Sterilizable Positioning Handle
8. Wall Control

INSTALLATION NOTES

•The SKYTRON Surgical Lighting Fixture is normally shipped in two to four crates, depending on the model. A carton containing the Vertical Support Tubes, miscellaneous hardware, and various instructional materials is packed separately.

•Follow the Installation Instructions and utilize the Installation Check List to assure proper installation.

•Special adapter plates for mounting SKYTRON surgical lights on existing mounting structures are available. Contact your SKYTRON representative for special application details.

•Additional materials required for proper installation include Loc-Tite compound.

•Stellar Series lighting fixtures require a wall mounted control box. Single and Dual Lighthead models 8" x 10", for Triple 10" x 13-1/2". 3/4" conduit and minimum 12 AWG wire is required between wall control and fixture. 10 AWG wire is recommended for installations requiring wires between control box and fixture that are longer than 25'.

•Contact SKYTRON pepresentative for Seismic calculations if applicable.

UNCRATING

•Should any damage to the fixture be noted while uncrating, further unpacking should be stopped and the container with all the wrappings held for inspection. The transportation company should be notified immediately so an inspector can be sent. Consult the Damaged Shipment Claim Procedure sheet for further details.

•Personnel uncrating SKYTRON surgical lights should be aware that they are delicate medical equipment and special care in handling should prevail throughout installation.

RADIAL ARM ASSEMBLY

•When the radial arm assembly is removed from the crate and set on the floor prior to mounting it, be sure the mounting flange is toward the floor. If the arm assembly is set on the floor upside down the hub cover may be damaged. See figure 1.

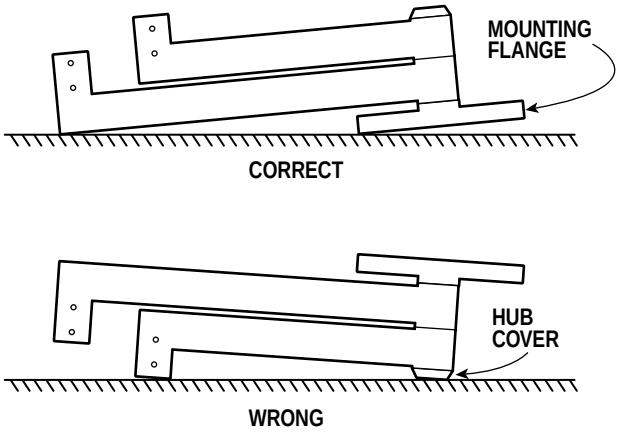


Figure 1. Radial Arm Assembly

LIGHTHEADS

•Use extreme caution when removing the contents from the crates to prevent damage to the lights. Leave the lightheads in their crates until ready to install.

•If the lighthead must be set down after it is removed from the crate, always lay it on the foam shipping block. Do not lay it on the front face.

UNCRATING PROCEDURE

Open the top of the lighthead box and remove the packing material, remove the sterilizable positioning handle and remove lighthead from the crate.

NOTE

Details may vary depending upon model and support structure fabrication.

ALL fixtures use METRIC fasteners.

INSTALLATION PROCEDURE

The lighting fixture should be installed in the following sequence:

1. Mounting Plate
2. Radial Arm Assembly and Ceiling Cover
3. Vertical Support Tubes/ Balance Mechanisms
4. Lightheads
5. Wall Control

1. Mounting Plate

a. Check the strength and stability of the mounting structure. It should be fabricated of steel and welded or bolted to the structural ceiling. It should be braced in a manner that will allow no twisting or lateral motion. In standard installations a steel stiffener plate should be used to connect the 3/4" diameter "all-thread" support rods and to provide an attachment base for the angle-iron sway bracing. The 3/4" diameter support rods should be mounted in a 9-1/2" square pattern and should extend 2-1/4" below the finished ceiling. See Mounting Structure details in the back of this booklet. Specific requirements for seismic compliance are available. Please refer to seismic calculations and drawing on page 10.

b. Install the SKYTRON mounting plate on the threaded rods between jam nuts. The plate should normally be located 1-3/8" off the finished ceiling (measured from the bottom of the plate) and accurately leveled, within 0.1 degree, using a digital level. Tighten the jam nuts securely. See figure 2.

WARNING

The mounting plate must be accurately leveled to prevent lighthead drift.

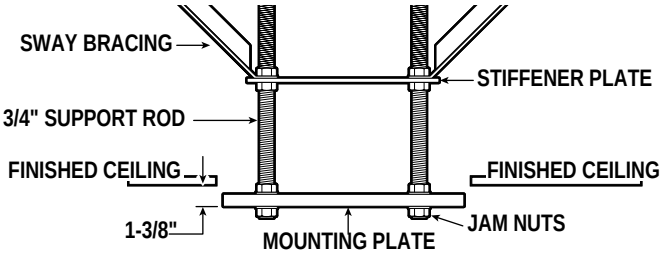


Figure 2. Mounting Plate Installation

NOTE

On recessed mounts, extended mounts, or adapter situations, the mounting plate will NOT be placed 1-3/8" off the finished ceiling. A special drawing will be included in the installation package to cover these applications.

NOTE

Specific seismic calculations are available if required.

2. Radial Arm Assembly and Ceiling Cover

NOTE

•The multiple arm assemblies are easier to handle during installation if the arms are left taped and tied together.

•In some cases it may be necessary to connect the electrical wires from the wall control to the radial arm junction box before the arm assembly can be bolted to the mounting plate.

•Use two 6" to 8" bolts to hold fixture while connecting wiring.

a. Install the Radial Arm Assembly(RAA) onto the mounting plate using the bolts provided. Tighten the mounting bolts securely.

IMPORTANT

Radial Arm wires are tagged for proper connection to the Wall Control (top arm #1, next arm #2, bottom arm [triple arm models] #3).

b. Observe wire tags and color codes and connect the electrical wires from the wall control to the radial arm junction box wires.

IMPORTANT

Connection of the fixture wires using Crimp Connectors is recommended due to the low voltage/high amperage electrical requirements.

c. Install the ceiling cover and secure. See figure 3.

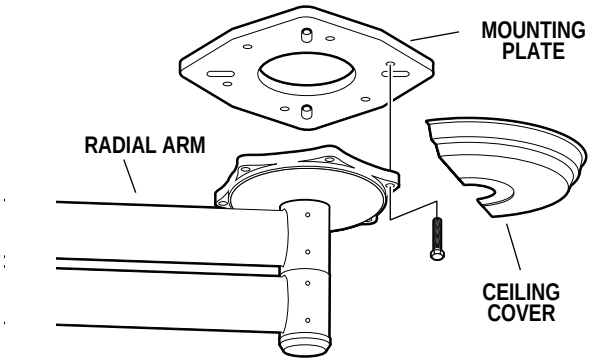


Figure 3. Radial Arm Installation

3. Vertical Support Tubes/Balance Mechanism

NOTE

Determine correct placement for each Balance Mechanism(BOM)/Vertical Support Tube(VST) on the radial arm assembly. The longest VST goes into the top radial arm.

WARNING

Apply Loc-Tite to all of the 6mm mounting screws and use a 4mm allen wrench to tighten the screws.

a. Install the VST on the BOM, apply Loc-Tite to screw threads and secure VST with the allen screws provided. See figure 4.

CAUTION

The 6mm mounting screws for attaching the VST to the radial arm may be different lengths. Observe any color code markings and make sure the proper screws are installed in the proper holes to avoid any damage to the electrical components.

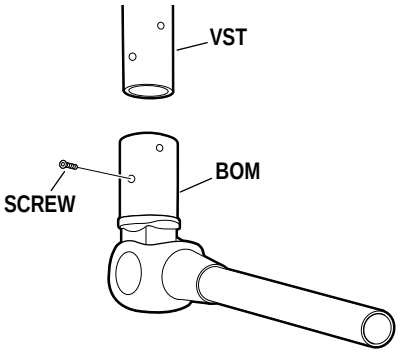


Figure 4. Balance Mechanism

b. Observe the wire colors and connect the wires from the radial arm to the corresponding BOM/VST wires using crimp connectors. See figure 5.

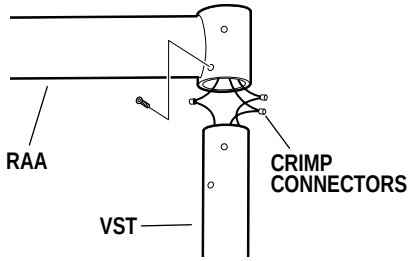


Figure 5. VST to RAA Installation

c. Insert the vertical support tube into the radial arm receptacle. Observe any screw color codes, apply Loc-Tite to screw threads, and secure the BOM/VST assembly with the 6mm mounting screws. Repeat procedure for any remaining BOM/VST assemblies.

4. Model 29 Lighthead

Refer to Model Identification for correct lighthead placement.

a. To make it easier to install the lighthead, locate the support arm of the balance mechanism so that it points inward toward the ceiling cover. This will prevent the radial arm from moving when installing the lighthead. See figure 6.

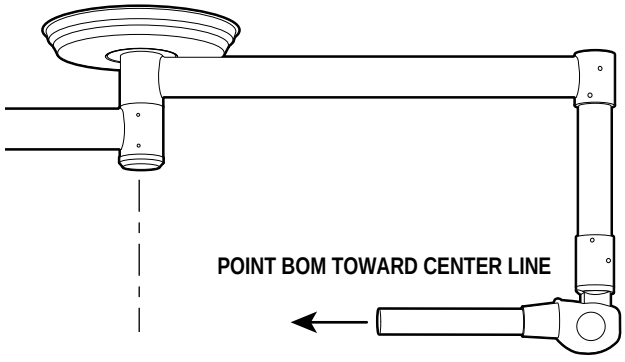


Figure 6.

b. Remove the four (4) screws from the lighthead mounting stub.

c. Install the lighthead mounting collar onto the support arm and secure with the screws previously removed. See figure 7.

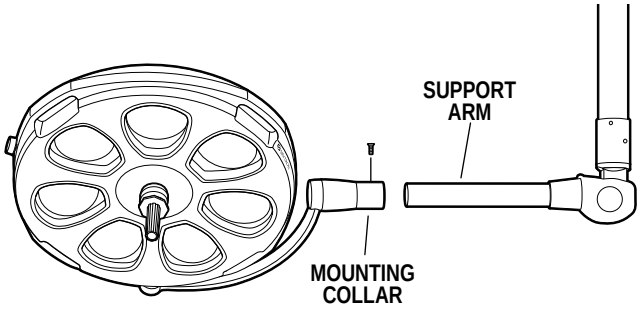


Figure 7. Model 29 Lighthead Installation

d. Pull the lighthead down and remove the Above Horizontal Limit Stops from the BOM. See figure 8.

WARNING

DO NOT remove lighthead when support arm is in down position; The balance mechanism will be severely damaged and may result in bodily injury.

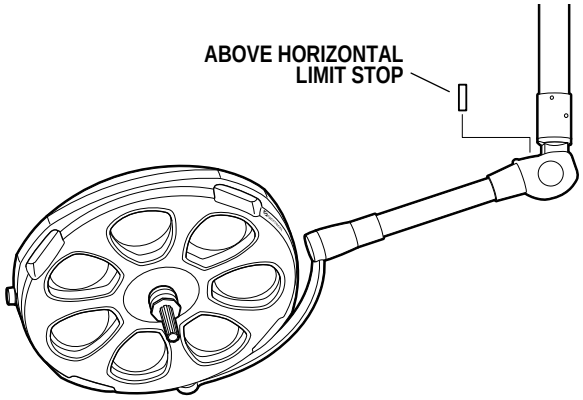


Figure 8. Above Horizontal Limit Stops

4. Model 23 Lighthead

a. To make it easier to install the lighthead, locate the support arm of the balance mechanism so that it points inward toward the ceiling cover. This will prevent the radial arm from moving when installing the lighthead. See figure 6.

b. Remove the four (4) screws from the lighthead mounting stub.

c. Install the lighthead mounting stub into the support arm and secure with the screws previously removed. See figure 9.

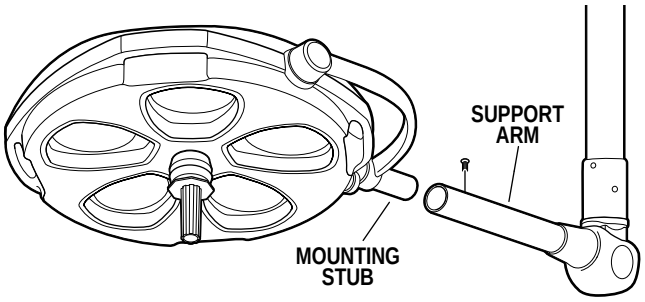


Figure 9. Model 23 Lighthead Installation

d. Pull the lighthead down and remove the Above Horizontal Limit Stops from the BOM. See figure 8.

WARNING

DO NOT remove lighthead when support arm is in down position; The balance mechanism will be severely damaged and may result in bodily injury.

5. Wall Control

IMPORTANT

- 3/4" conduit and minimum 12AWG wire (2 wires per lighthead plus fixture ground) is required between Wall Control and Fixture.
- All wiring to be in accordance with local electrical codes.

a. Install wall mounted control box using the following procedures.

b. Remove the transformer tray assembly from the wall control box for ease in wire connection. See figure 10.

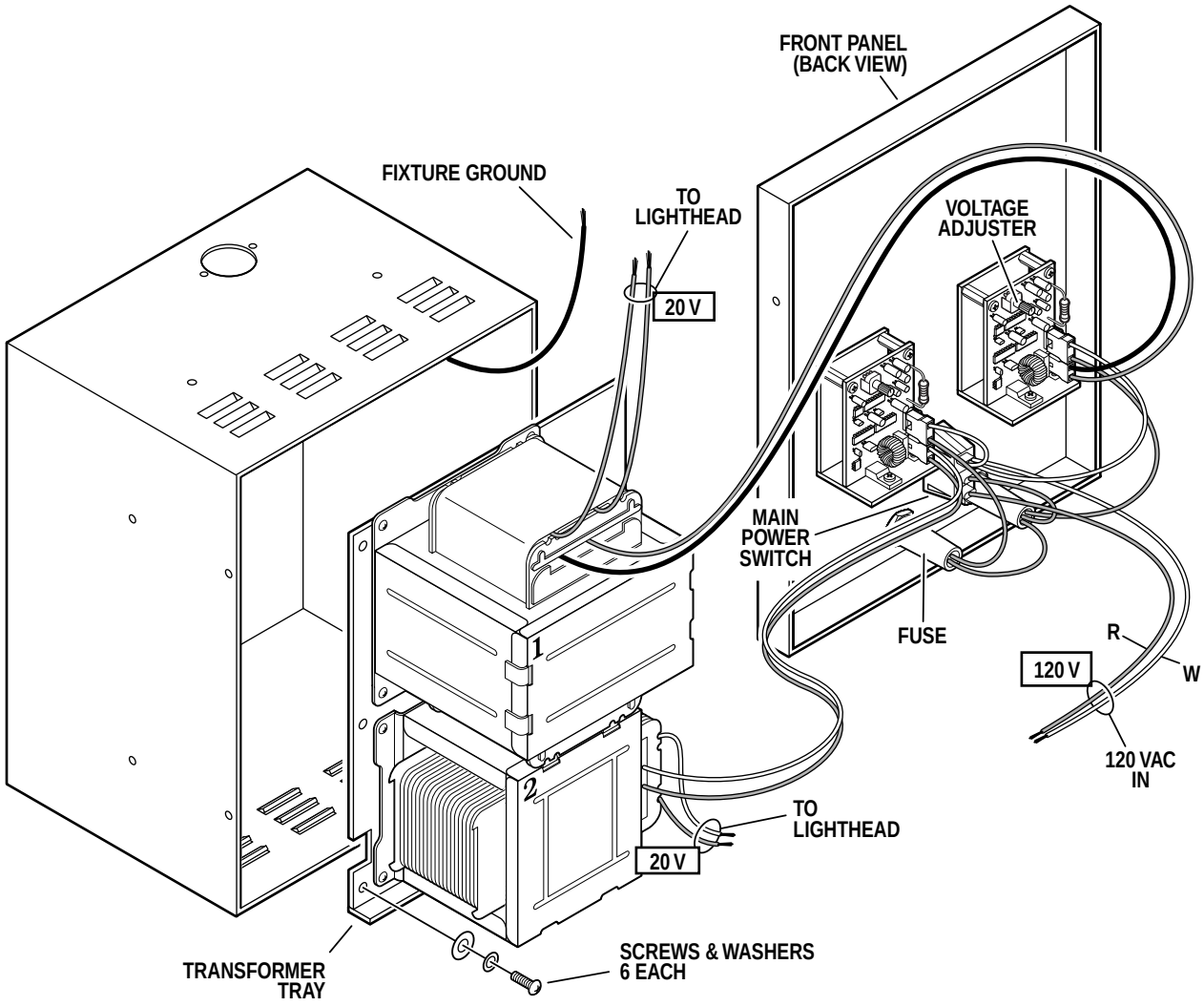
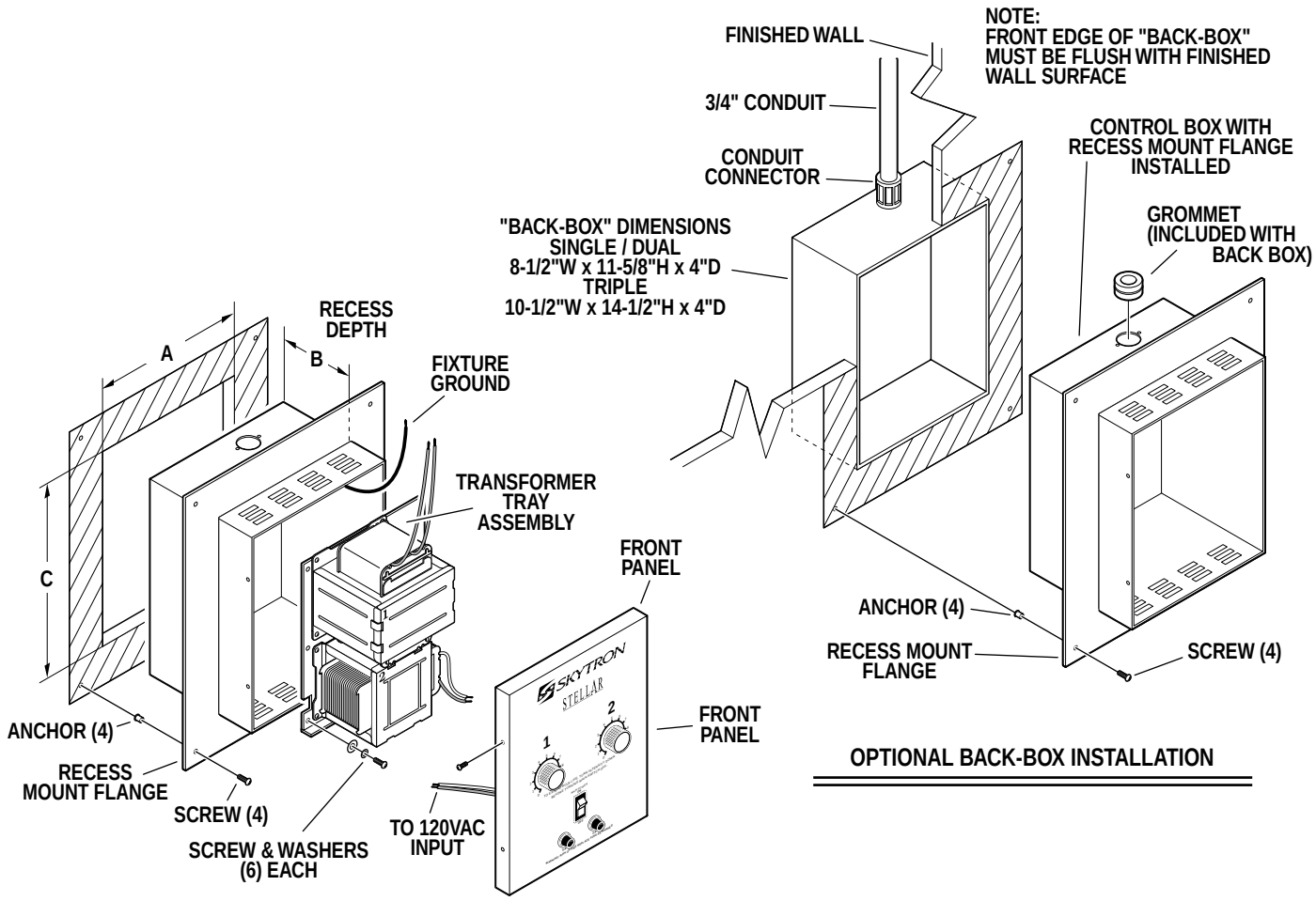
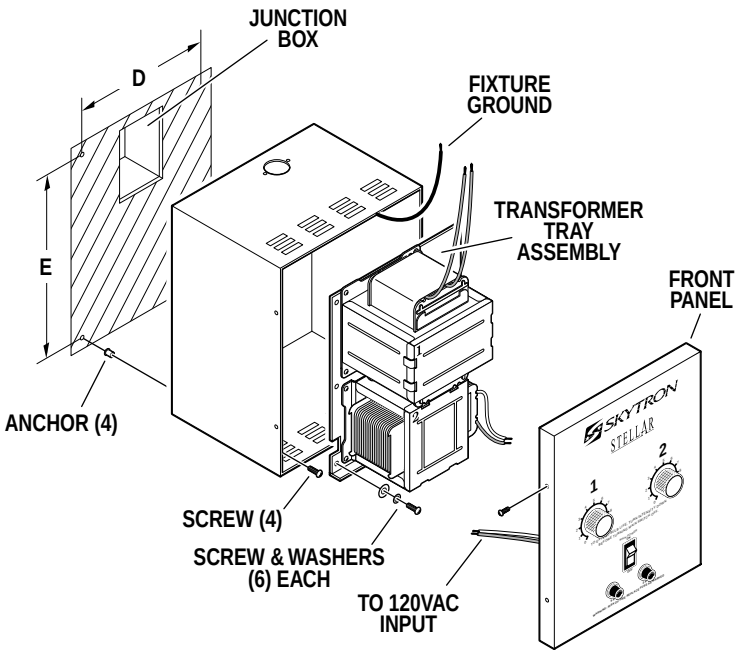
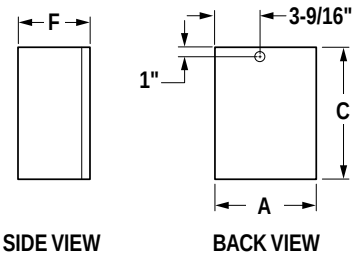


Figure 10. Wall Control



	DIMENSIONS	
	SINGLE OR DUAL	TRIPLE
A	8"	10"
B	4"	4"
C	10"	13-1/2"
D	6-7/8"	8-5/8"
E	7-5/8"	11"
F	5-7/8"	6-3/8"
	RECESS MOUNT FLANGE	
	11-3/4"W x 14"H	13-3/4"W x 17-1/4"H





SURFACE MOUNT

Figure 11. Wall Control Installation

c. Install the wall control box as desired (surface or recessed mount) as shown in the wall control illustration, figure 11.

IMPORTANT

Control Box wires are tagged for proper connection to the fixture.

d. Observe wire tags and color codes and connect output leads to appropriate lighthead wires using crimp connectors. See figure 10.

IMPORTANT

120 VAC isolated power supply requires double pole, single throw 20 amp (maximum) breaker.

e. Connect 120 VAC power supply to input wires and ground fixture properly.

⚠ CAUTION ⚠

TO AVOID BLOWING FUSES, DO NOT TURN MAIN POWER TO FIXTURE "ON" UNTIL ALL LIGHTHEADS ARE INSTALLED AND ALL WIRING CONNECTIONS ARE COMPLETED.

Output Voltage Adjustment

a. Remove top cover from VST and test bulb voltage at the wire connections. Turn main power "ON" and set the Dimmer Control for the lighthead being tested to maximum intensity for the test. Output voltage (at the connectors) should be 20V ± 0.2V. See figure 12.

IMPORTANT

The internal circuitry used in the Stellar system requires the use of a **true RMS type digital voltmeter** to accurately set the bulb voltage. Premature bulb failure will result from incorrect voltage.

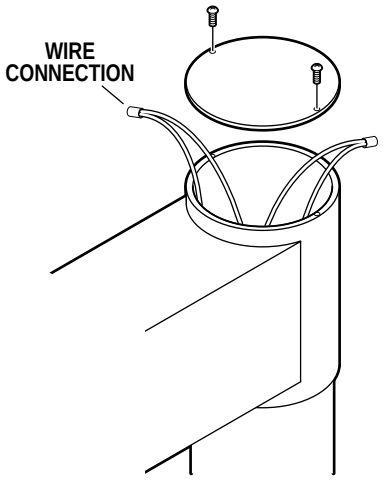


Figure 12. Bulb Voltage Test

b. Adjust the voltage to the lighthead by turning the adjuster on the back of the appropriate dimmer control in the wall control. See figure 13.

c. Turn the adjuster clockwise to increase the output voltage, counterclockwise to decrease the voltage.

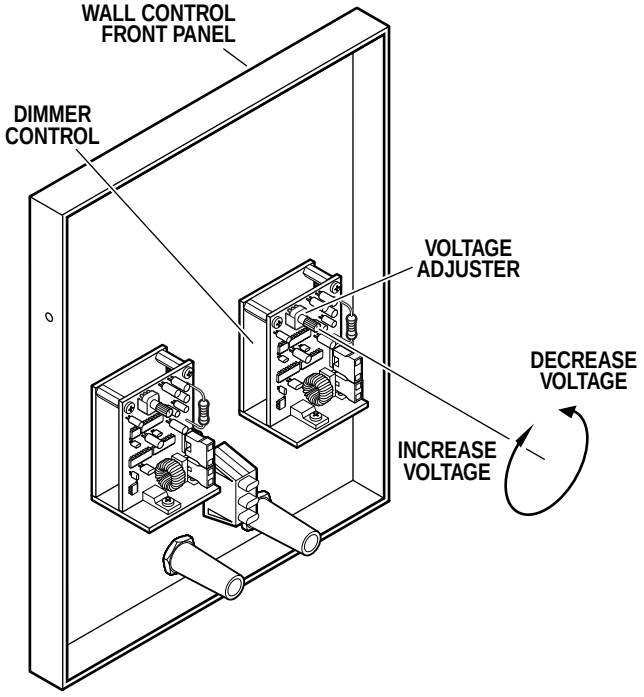
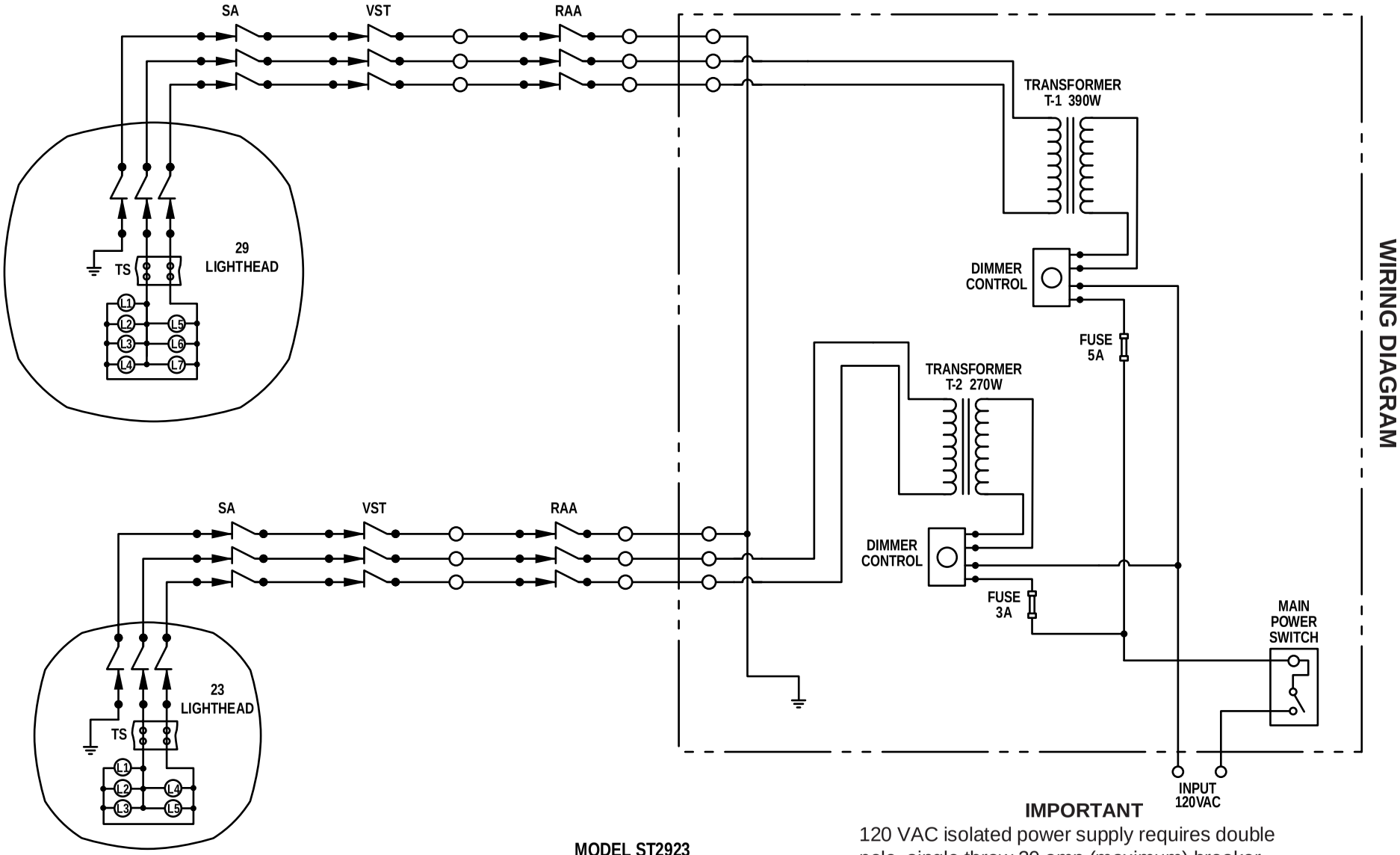


Figure 13. Voltage Adjustment

- CRIMP CONNECTORS
- BRUSH BLOCK
- SLIP RING
T1-T3 - TRANSFORMER
L1-L8 - BULB

TS - TERMINAL STRIP
SA - SUPPORT ARM
RAA - RADIAL ARM ASSEMBLY
VST - VERTICAL SUPPORT TUBE

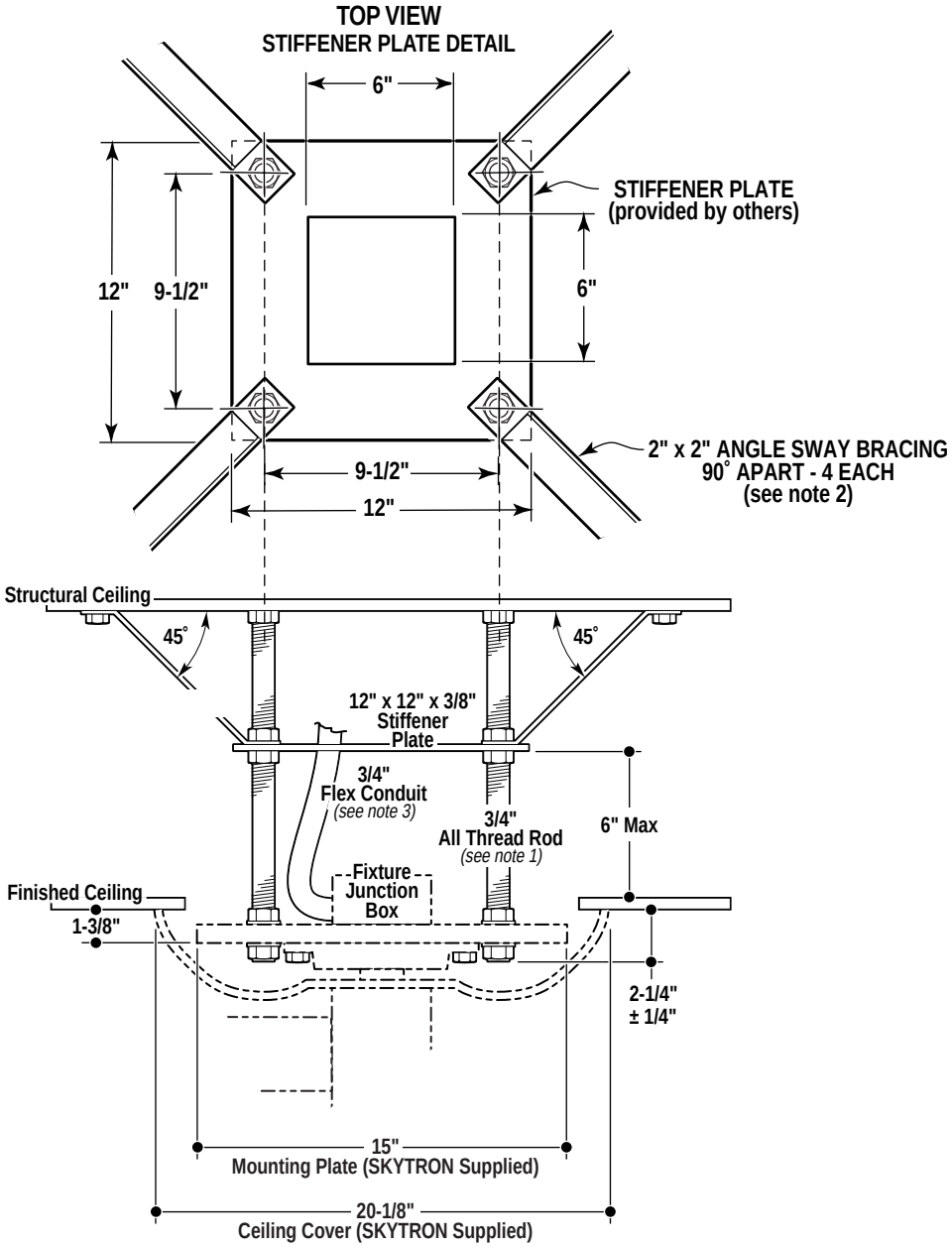


MODEL ST2923

IMPORTANT

120 VAC isolated power supply requires double pole, single throw 20 amp (maximum) breaker.

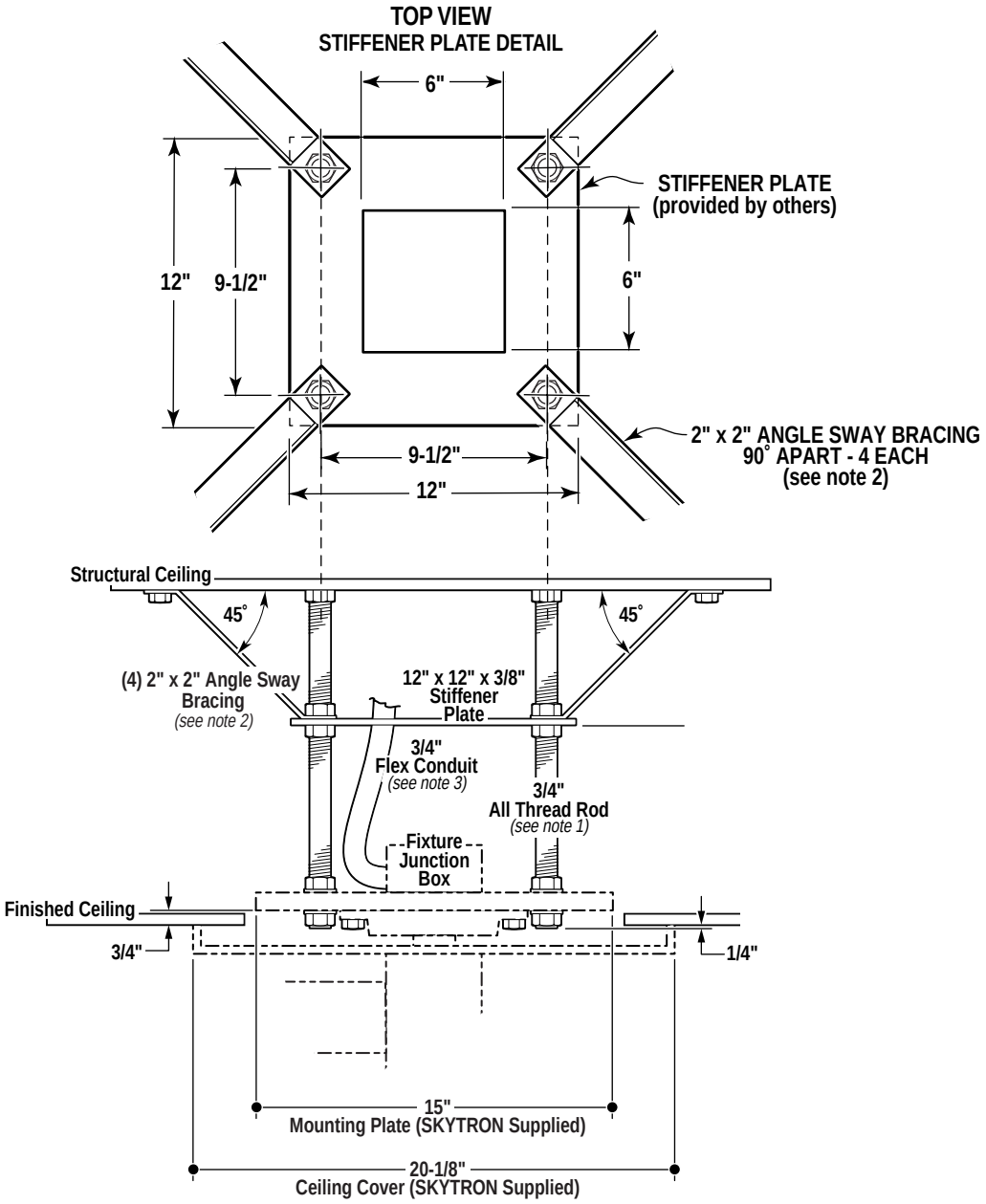
STANDARD MOUNTING STRUCTURE GUIDELINE



NOTES

1. 3/4" support rods located for total support of light, all labor and materials for fabrication supplied by General Contractor. 3/4" nuts and washers for support of SKYTRON mounting plate supplied by contractor (8 ea. required).
2. The mounting structure must be attached to structural ceiling and **BRACED TO ALLOW NO TWISTING OR LATERAL MOTION** and shall be designed not to provide a degree of rotation greater than two-tenths of a degree at the mounting plate.
3. 3/4" conduit and minimum 12AWG wire size (2 wires per lighthead plus fixture ground wire) required between fixture and SKYTRON supplied wall control. All conduit, wiring, and other electrical materials as well as installation labor for the SKYTRON surgical light to be provided by Electrical Contractor. All installations of SKYTRON surgical lights should be under the direct supervision of a SKYTRON representative. All wiring to be in accordance with local codes.
4. CONTRACTOR HAS FINAL RESPONSIBILITY for the strength and stability of the Mounting Structure. **This is a GENERAL GUIDELINE ONLY.**

RECESSED MOUNTING STRUCTURE GUIDELINE



NOTES

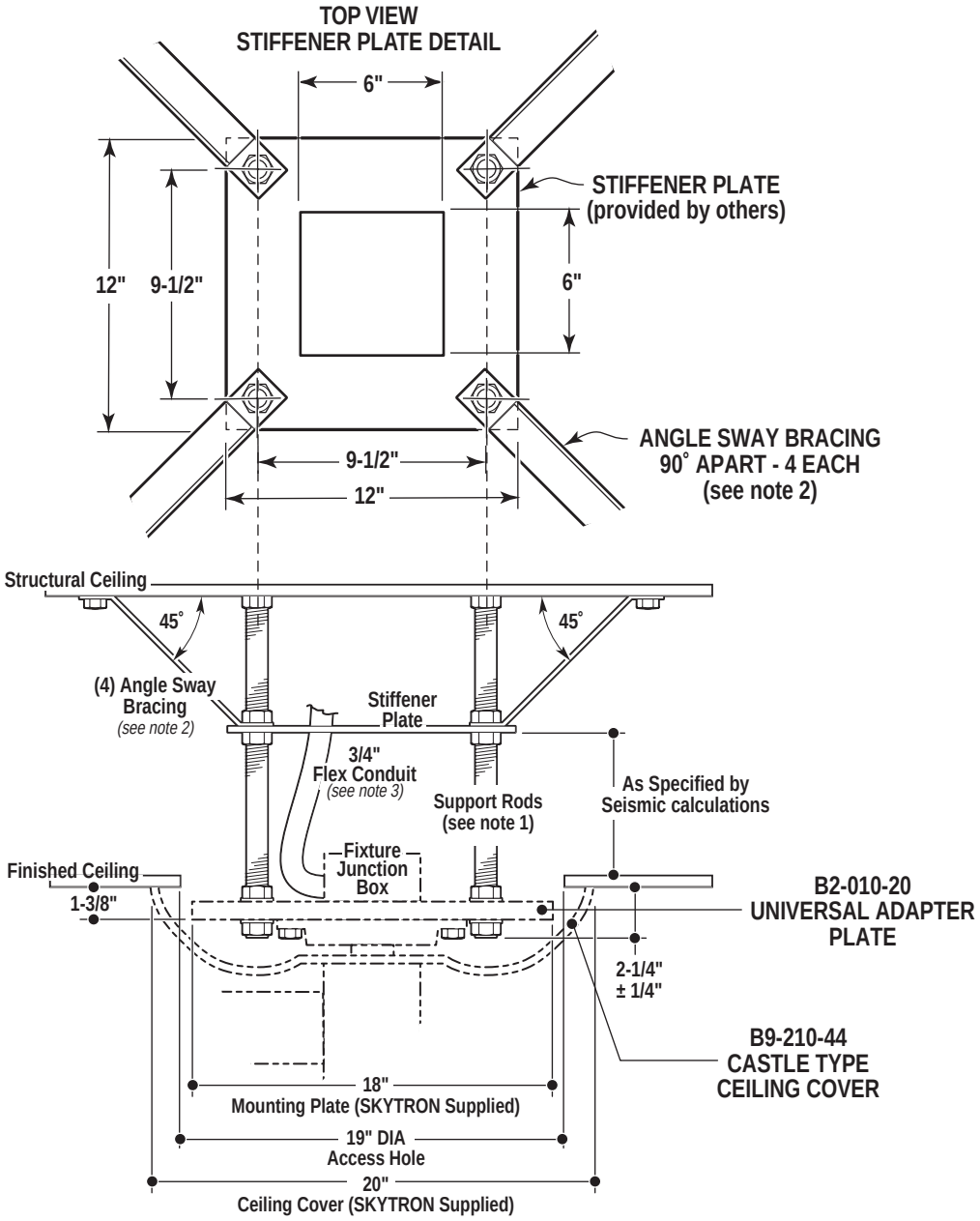
1. 3/4" support rods located for total support of light, all labor and materials for fabrication supplied by General Contractor. 3/4" nuts and washers for support of SKYTRON mounting plate supplied by contractor (8 ea. required).
2. The mounting structure must be attached to structural ceiling and **BRACED TO ALLOW NO TWISTING OR LATERAL MOTION** and shall be designed not to provide a degree of rotation greater than two-tenths of a degree at the mounting plate.
3. 3/4" conduit and minimum 12AWG wire size (2 wires per lighthead plus fixture ground wire) required between fixture and SKYTRON supplied wall control. All conduit, wiring, and other electrical materials as well as installation labor for the SKYTRON surgical light to be provided by Electrical Contractor. All installations of SKYTRON surgical lights should be under the direct supervision of a SKYTRON representative. All wiring to be in accordance with local codes.
4. CONTRACTOR HAS FINAL RESPONSIBILITY for the strength and stability of the Mounting Structure. **This is a GENERAL GUIDELINE ONLY.**

HEADROOM CLEARANCE INCREASE - 2"

SEISMIC APPLICATION MOUNTING STRUCTURE GUIDELINE

Typical Mounting Structure Shown

Contact SKYTRON representative for Seismic Calculations if Applicable



NOTES

1. Support rods as specified per seismic calculations are to be located for total support of light, all labor and materials for fabrication supplied by General Contractor. Nuts and washers for support of SKYTRON mounting plate supplied by contractor (8 ea. required).
2. The mounting structure must be attached to structural ceiling and **BRACED TO ALLOW NO TWISTING OR LATERAL MOTION** and shall be designed not to provide a degree of rotation greater than two-tenths of a degree at the mounting plate.
3. 3/4" conduit and minimum 12AWG wire size (2 wires per lighthead plus fixture ground wire) required between fixture and SKYTRON supplied wall control. All conduit, wiring, and other electrical materials as well as installation labor for the SKYTRON surgical light to be provided by Electrical Contractor. All installations of SKYTRON surgical lights should be under the direct supervision of a SKYTRON representative. All wiring to be in accordance with local codes.
4. CONTRACTOR HAS FINAL RESPONSIBILITY for the strength and stability of the Mounting Structure.

This is a GENERAL GUIDELINE ONLY.

DAMAGED SHIPMENT CLAIM PROCEDURE

Whenever a shipment suffers damage while in the custody of the transportation company, the responsibility lies with the transportation company, and the value of the damages can be collected from the transportation company if the proper procedures are followed.

When a shipment is received in a damaged condition and due to the appearance of the containers such as a broken crate, torn wrapping, or smashed carton, the contents may have been damaged. That fact should be noted on the Bill of Lading offered by the transportation company. An example of an applicable statement would be; "Received in good order except as noted" or "Crate damaged, possibility of concealed damage." The addition of these types of statements on the shipping documents will automatically give grounds for starting a claim.

If damage cannot be identified on the exterior of the container, but is found when the container is opened, further unpacking should be stopped immediately and the container with all wrapping or packing materials should be held. The transportation company should be notified so an inspector can be sent. Failure to follow either of these two procedures may result in an inability to file a claim and collect for damage done. Returning the container to the sender without such an inspection may prevent filing a claim, because it will divide the responsibility for damage and in many cases the transportation company will return the shipment to the sender without charge after the inspection.

The claim itself may be filed by either the shipper or consignee, but the consignee must notify the transportation company and the shipper that the damage has occurred. Remember that refusal of the shipment or failure to note the possibility of damage on the shipping documents may jeopardize the claim. Also, acceptance of a damaged shipment which has been processed properly to allow for filing a claim, will not jeopardize the position of the consignee. In any case, SKYTRON will see that damage which is not the fault of the consignee or his agents is corrected, if the transportation company does not honor the claim, as long as SKYTRON receives the full cooperation of the consignee in filing the claim.

Some of the papers needed for filing a claim are in the hands of the consingnee after the shipment has been received. If SKYTRON must file a claim, we will request these papers by name from the consignee at such time as the claim is under discussion. We will require the originals of these papers and not copies.

Knowledge of the procedures outlined above and your cooperation in submitting damaged shipment claims will help both you, our customer, and SKYTRON by assuring the integrity of our products from manufacturing to installation.

INSTALLATION CHECK LIST

Mounting Structure:
- Fabrication of structure correct _____
- Mounting plate set and level _____
- 3/4" conduit and (min) 12AWG wire from fixture to wall control _____

Radial Arm Assembly:
- Mounting bolts installed & tightened _____
- Wiring properly connected & assembly grounded _____
- Ceiling cover installed _____

Vertical Support Tubes:
- All BOM/VST's installed and 6 mm mounting screws Loc-tited _____

Lighthead:
- Mounting stub screws installed _____
- Bulb Voltage checked _____
- Power ON, all bulbs illuminated _____
- Bulbs remain illuminated throughout:
  - •RAA rotation _____
  - •BOM rotation _____
  - •Pitch axis _____
  - •Roll axis _____
  - •Vertical travel _____
- Center focus handle mounted _____

Wall Control:
- Wiring proper gauge _____
- Wire connections correct _____
- Cover screws installed _____
- Input voltage checked and adjusted as necessary _____

Miscellaneous:
- Diffuser assemblies clean _____
- Clean fixture with cleaning solution _____

5000 36th Street S.E. • Grand Rapids, MI 49512
1.800.SKYTRON • 1.616.957.0500 • FAX 1.616.957.5053